The digital divide is a fact. Many people with disabilities do not participate, or experience difficulties in fully participating, in the digital society. There are many factors that contribute to this situation, ranging from environmental factors (physical and cultural barriers) to person-related factors, such as lack of training or unfamiliarity with technology. The ENTELIS network aims to reduce the digital divide by fostering exchange of information and good practice, by networking all relevant stakeholders and by contributing to policy development. The seminar will address the entire range of factors within a holistic perspective. However, in investigating possible solutions, it will particularly focus on person-related factors: it will explore how actions and measures aimed at the person’s empowerment and digital skills development can improve participation and freedom of choice in the digital society.
ENTELIS SEMINAR PROGRAMME

27 November 2014

Location: Camplus Bononia, Via Sante Vincenzi, 49-51, Bologna, Italy

Morning session (simultaneous translation from English into Italian provided)

8.30 Welcome and registration

9.00 Introduction
Evert-Jan Hoogerwerf, Project co-ordinator

9.20 Keynotes
Chair: Evert-Jan Hoogerwerf (AIAS Bologna Onlus, Italy)

The digital divide: fact or myth? Participation of persons with disabilities in the digital era.
Panayotis Zaphyris (Cyprus University of Technology)

Digital skills development: challenges and barriers for young persons with disabilities
Alireza Darvishy (Zürich University of Applied Sciences, Switzerland)

The nature of assistive technology provision in the United States: results from multiple studies
Deepti Samant Raja (Matching Person and Technology Institute, USA)

Discussion

10.45 Coffee break

11.15 Experiences and good practices
Chair: Sarah Weston (HF Trust, UK)

Education and employment perspectives in a changing world: new skills for new jobs
Karl Bäck (atempo, Austria)

Making independence a meaningful word: my ICT and ICT-AT learning process
Valentina Zincati (Assistive technology expert, Italy)

Bread and Internet: the policy of the Region Emilia Romagna to reduce the digital divide
Stefano Kluzer (Pane e Internet, Region Emilia Romagna, Italy)

The ENTELIS project results: research into the state of the art
Katerina Mavrou (European University of Cyprus)

Discussion

13.00 End of morning session
Afternoon session (simultaneous translation into Italian will be provided during the plenary sessions)

14.00 Experiences and good practices - selected presentations among those submitted
   Chair: Renzo Andrich (Association for the Advancement of Assistive Technology in Europe)

   Supporting students with disabilities at university
   Marie Coutant & Dominique Archambault (APACHES, France)

   Digital equality in school and during leisure time - young people with disabilities
   Helena Hemmingsson (Linköping University, Sweden)

   Teaching children with disabilities using eye-controlled computer
   Patrik Rytterström (Linköping University, Sweden)

   Learning environment for touch access to digital interfaces
   Charles Lenay (Compiègne University of Technology, France)

   Creation of an Interactive and Accessible Online Learning Environment
   Jere Kuusinen (Satakunta University of Applied Sciences, Finland)

15.45 Coffee break

16.00 Meeting needs! Ideas, activities and projects within the ENTELIS network (parallel working groups)
   During this session the participants will be invited to share recommendations and ideas for further action. Also ideas for new projects will be discussed. The groups will have a slightly different focus:

   WG 1 > Technological development
   Facilitator: Klaus Miesenberger (Linz University, Austria)
   Rapporteur: Lorenzo Desideri (AIAS Bologna Onlus, Italy)

   WG2 > Empowering practice in education, employment and social care
   Facilitator: Steve Barnard (HF Trust, UK)
   Rapporteur: Merja Sallinen (Satakunta University of Applied Sciences, Finland)

   WG3 > Evidence and policy development
   Facilitator: Luk Zelderloo (European Association of Service Providers for Persons with Disabilities)
   Rapporteur: Jim Crowe (European Association of Service Providers for Persons with Disabilities)

17.15 Results of the working groups and plenary discussion
   Chair: Evert-Jan Hoogerwerf (Co-ordinator of the project) and Dominique Archambault (AAATE)

18.00 Closure of the Seminar

Shuttle service (h. 18.30) to the Handimatica Fair and Social dinner.

On Friday 28th the Person Centred Technology group of EASPD in collaboration with AIAS Bologna onlus will organise a one day training seminar for service providers and other interested professionals on: “Bridging the Gap between Technology and Care: the opportunities offered by Person Centred Technologies in supporting clients with disabilities”. The training will take place in the Corte Roncati AT Centre.

More information on http://www.easpd.eu/content/building-better-services-getting-best-technology
SPEAKERS and CHAIRS
Karl Bäck
MA in educational science, Univ. of Graz; experience in teaching ICT for people with SEN and their teachers and supporters; expert in assistive technologies; experiences in developing learning material, 10 years of experience in European projects in the field of Web and ICT Learning. EU-Course Organizer and Trainer for iPads and Tablets in inclusive education.

Renzo Andrich
Background in Electrical Engineering. Since 1981 working at the Don Carlo Gnocchi Foundation in Milano: until 2002 as responsible of SIVA (Assistive Technology Assessment and Information Service), currently as leader of the Assistive Technology Research team within the Centre for Innovation and Technology Transfer (CITT). He has served as researcher and project coordinator in various national and European projects. He is director of the High Education Course on Assistive Technology at the Don Gnocchi Foundation. He currently chairs the European Assistive Technology Information Network (EASTIN www.eastin.eu).

Dominique Archambault & Marie Coutant
Pr Dominique Archambault is professor in Computer Sciences at University Paris 8-Vincennes-Saint-Denis, member of the THIM laboratory (Technologies, Disabilities, Interactions, Multimodalities), and Chargé de mission in charge of the politics towards disabilities at University Paris 8. His works focus on non-visual human-computer interaction and accessibility to complex documents. He is involved in the support of disabled students at University since 25 years and is the vice-president of the French Association of Professionals Supporting students with disabilities in Higher Education (APACHES, http://asso-apaches.fr). He is co-leader of the Master “Technologies and Disabilities” of University Paris 8 (http://www.master-handi.fr). Additionally he is a board member of the Association for the Advancement of Assistive Technology in Europe (AAATE, http://www.aaate.net), the General Secretary of the Institut Fédératif de Recherche sur les Aides Techniques pour personnes Handicapées (IFRATH, http://ifrath.fr), and the chair of the Scientific Committee of ICCHP Summer University where people with visual disabilities can learn and share assistive technologies to work in Maths, Statistics and Science. He has published about a hundred publications including papers in international journals and conferences.

She is in charge of 2 complementary functions: Head of the support centre for students with disabilities and co-Manager of the scientific program “Disability and Social Sciences”. She is managing five master and doctoral seminars and took part as teacher in the seminar: “Deafness and sign language”. She is focusing her interest on students, deafness and sign language. She is the president of the French Association of Professionals Supporting students with disabilities in Higher Education (APACHES, http://asso-apaches.fr).

Karl Bäck
MA in educational science, Univ. of Graz; experience in teaching ICT for people with SEN and their teachers and supporters; expert in assistive technologies; experiences in developing learning material, 10 years of experience in European projects in the field of Web and ICT Learning. EU-Course Organizer and Trainer for iPads and Tablets in inclusive education.
Alireza Darvishy  
Alireza Darvishy studied Computer Science in Zürich, obtaining his doctorate in 1998. For more than twenty years, he has committed himself to ICT Accessibility and is Head of the ICT-Accessibility Lab at ZHAW Zürich University for Applied Sciences. He became the first professor in the field of accessibility in Switzerland. Furthermore, he is a member of the program committee of ICCHP, independent expert in the area of ambient assisted living AAL and Switzerland’s country representative in the Global Alliance on Accessible Technologies and Environments (GAATES).

Helena Hemmingsson  
Helena Hemmingsson is PhD and full professor in Occupational Therapy at the Department of Social and Welfare Studies, Linköping University, Sweden. Her research and professorship has a focus on disability in everyday life. Major research line is school participation and the transition to working life for young people with disabilities. Additional research lines focus on enabling technology and digital equality.

Evert-Jan Hoogerwerf  
Evert-Jan Hoogerwerf is Head of the Projects Office of AIAS Bologna onlus. He is also team member of Emilia Romagna’s Regional Centre for Assistive Technology, the main AT resource centre in Bologna staffed by AIAS. He has coordinated different European projects, among which the Keeping Pace with Assistive Technology Project. Other interests are in media education, development education, training and education and maltreatment prevention. Since January 2014 he is the president of the Association for the Advancement of Assistive Technology in Europe and co-ordinator of the ENTELIS project.

Stefano Kluzer  
During the past 4 years, Stefano Kluzer has been working as a researcher and consultant on digital in/exclusion issues. He currently works for Ervet (regional development agency) and the regional government of Emilia Romagna on: the digital literacy project Pane e Internet (http://www.paneeinternet.it); the programme Parole in Gioco for second language and civic education of adult immigrants e-Inclusion matters; the European TRUTH project (http://www.truthuncovered.eu/); and the FP7 MASELTOV project (http://www.maseltov.eu).

Jere Kuusinen  
Jere Kuusinen (MA) is working as a senior lecturer and researcher at Satakunta University of Applied Sciences, Finland. He has studied Media design at Helsinki University of Art and Design. Jere Kuusinen has written several publications about accessibility and usability.

Charles Lenay  
Has been director of the Research Unit EA2223 COSTECH (Knowledge, Organisation and Technical Systems) at UTC, Compiègne University of Technology (2004-2011). He created in 1995 the Perceptive Supplementation Group (GSP) in the framework of this Research Unit to study assistive technologies for blind people. As a professor in Philosophy of sciences (2005) his research interests concern the question of cognitive technologies: how tools and technical devices participate in cognitive activity in the broad sense – reasoning, memory,
perception and social interaction. For this he created a minimalist experimental paradigm allowing a dialogue between cognitive psychology and phenomenology.

Katerina Mavrou

Dr. Katerina Mavrou is an Assistant Professor in Inclusive Education and Educational/Assistive Technology at the European University Cyprus. She holds a PhD in the area of Technology and Inclusive Education, an M.Ed in Special Needs and Development and a B.Ed in Primary Education, as well as a professional certificate in Assistive Technology (AT). She worked as a special primary education teacher and as an AT Coordinator at the Ministry of Education and Culture. Her research interests focus on design of inclusive learning environments and the implementation of AT, ICT and accessibility.

Deepti Samant Raja

Blending backgrounds in Electrical and Computer Engineering and Rehabilitation Counseling, Deepti Samant Raja brings over ten years of experience promoting the social and economic inclusion of people with disabilities with a focus on assistive and accessible technology service delivery. Samant Raja is currently an international consultant on disability-inclusive development. She is a Fellow for Technology and International Programs at the Burton Blatt Institute (BBI) at Syracuse University (USA) and a lead researcher on the Center on Effective Rehabilitation Technology service delivery, identifying effective models to promote assistive technology service delivery for successful employment outcomes. She is working as a consultant with the Institute for Matching Person and Technology to promote knowledge exchange in reducing the ICT/ICT-AT digital divide under the ENTELIS project. She is also working as a Senior Research Analyst with G3ict to facilitate knowledge exchange and partnership development for G3ict in India and develop research papers on issues such as inclusive ICTs for financial services, inclusive skills development in the IT sector, and disaster management. Previously, Deepti was the Director of International Programs and senior researcher at BBI and worked for the Secretariat of the Global Partnership for Disability and Development. Her past work has included several projects on improving the process and practice of technology accommodations in the workplace. Deepti has a Master of Science in Rehabilitation Counseling from the University of Illinois at Urbana-Champaign and a Master of Science in Electrical and Computer Engineering from the University of California, Irvine.

Patrik Rytterström

Patrik Rytterström is working at Linköping University as a lecturer and post doctor. He is a registered Psychiatric and Mental Health Nurse and Ph.D. Research focusing on care culture and humans relation to technology.
Sarah Weston  
Sarah Weston is the Innovation Manager at Hft. Her role involves working to develop strategies and raise the profile of Hft’s work around assistive technology and how it can enhance the lives of people with learning disabilities. Sarah also works on developing partnerships and opportunities to extend Hft’s work around assistive technology and how technology-based solutions can be applied to other audiences – including through the Midallas project, based in Liverpool, which aims to raise awareness of the opportunities offered by self-care, using a cultural shift and technology-based solutions. Prior to this, Sarah has worked in public relations and press office management for a number of UK-wide charities, including the Soil Association and Parkinson’s UK, as well as working for Hft as their public relations manager between 2012-13.

Panayiotis Zaphiris  
Prof. Panayiotis Zaphiris is a Professor in the Department of Multimedia and Graphic Arts, and Dean of the Faculty of Fine and Applied Arts of the Cyprus University of Technology (CUT). He is leading the Cyprus Interaction Lab, a research lab specializing in the study of the interaction of people with technology in various fields. Panayiotis has a PhD in Human-Computer Interaction from Wayne State University, USA. He also has an MSc in Systems Engineering and a BSc in Electrical Engineering both from University of Maryland, College Park, USA. His research interests lie in HCI with an emphasis on inclusive design and social aspects of computing.

Valentina Zincati  
Valentina is a filmmaker, web designer and poetress. She makes extensive use of assistive technology to boost her independence.
ABSTRACTS
Keynotes

The digital divide: fact or myth? Participation of persons with disabilities in the digital era
Panayotis Zaphyris (Cyprus University of Technology)

Focusing on the digital divide and the opportunities and challenges the internet provides to older and disabled users, the presentation will cover the results of a series of projects focusing on analysing, modelling and simulating online user behaviour. Studies to be presented will focus on modelling age differences in web navigation; development of research based web accessibility design guidelines for older people; describing and analysing social support in online communities for older people; studying cultural differences in online communities and analysing, modelling and simulating social networks around computer games. The presentation will highlight the importance of these findings to Human Computer Interaction and Inclusive Design research and propose a research agenda for the future.

The nature of assistive technology provision in the United States: results from multiple studies
Deepti Samant Raja (Matching Person and Technology Institute, USA)

ICT is a key driver for the successful employment of persons with disabilities. Empowering persons with disabilities to compete in the increasingly digital work environment will require access to ICTs and ICT-ATs and relevant training to use them. This paper shares findings from two surveys on consumers’ experiences with obtaining ICT and ICT-AT for employment through the vocational rehabilitation system as well as through their employers in the United States. It explores the role of ICT and ICT-AT in workplace productivity, performance, and growth. It also explores the nature and impact of training and education on AT for effective use. The results from these different cohorts offer important lessons in developing strategies to overcome the digital divide and allow meaningful access to ICT and ICT-AT for successful employment outcomes in today’s technology-based workplace.

Read the full-text of this presentation here: http://www.entelis.net/en/node/115
Experiences and good practices

Education and employment perspectives in a changing world: new skills for new jobs
Karl Bäck (atempo, Austria)

About atempo
atempo offers various training and learning facilities for people with learning difficulties and disabilities in Graz and several services to assist them to get jobs on the first labour market. On the other hand atempo offers services and products which obtain its certain quality out of the fact that people with learning difficulties and disabilities are involved in the production and delivery. The aim of all atempo activities is to work towards equalisation of people with learning difficulties and disabilities. The department “Education and Career” provides vocational training with the main goal to include our trainees in the first labour market. The training is based on digital and office skills. The department “capito” produces information products which are “easy to read” or “easy to understand” and barrier free in terms of technical accessibility. atempo also developed “nueva”, a model to define, evaluate and describe the quality of services out of the perspective of service users.

ICT training at atempo
When atempo started to provide vocational training - 13 years ago - we mainly taught basic computer skills and we supported – and are still supporting - our students to obtain the ECDL (European Computer Driving Licence) certificate. They are using a learning program which allows them to learn individually in their own pace and to repeat every chapter as often as they need. More than 100 students have already got the certificate and it is still an important part of our training. They are really very proud about the certificate and they can show an evidence when they search for a job.
But in the last few years computers are more and more used for a lot of other purposes than people learn it in the traditional computer training. They are used for networking, online collaboration, watching videos, chatting via skype, facebook or whatsapp and so on. Nowadays we are able to use computers and the internet more actively (Web 2.0) and so we added those aspects to our ICT training. We developed an own secure social networking platform and talk about safety in the internet (i.e. safe use of facebook) in class. Additionally we started to run video workshops and are developing websites which are easy to build and where mainly pictures and videos are used. The website building tool we use was one outcome of a European project called “Web 2.0 for people with intellectual disabilities.”
Since a few years computers have dramatically changed to smaller, mobile devices and so we started to use tablets in our training. These new devices are easier to handle and have a lot of accessibility features embedded in their operating systems. Furthermore lots of our students have their own smartphones and use them at any time. One positive aspect is that people are really used to new technologies – they all are so called digital natives – and we are challenged to make the best of it for our vocational training and redefine those mobile computers as supportive device that can be used on the job.
There are new opportunities to overcome some of the barriers to get a job as these devices can support them –like all of us - to find our way, organise the tasks and appointments, stay in contact permanently and they can contain multimedia guidance for different tasks.
Our vision is that these new devices could serve - like a pair of glasses for people with visual impairments – as an aid to overcome learning and other disabilities.

**European cooperation**

We have just started a 3-year strategic partnership (in the frame of Erasmus+ Programme) called “Inclusive Education with Tablets”. Aim of this project is to develop a course programme on the usage of tablets in inclusive education. This will lead to a differentiated offer of courses focusing on different fields and possibilities to use and integrate new mobile devices into inclusive school and adult education. Furthermore an online platform and community will be developed that will offer lots of information and learning material for the usage of tablets in class and to share experiences all over Europe. You can find more information about our courses on our website under [http://www.atempo.at/de/Angebote/Bildung-und-Karriere/Courses/](http://www.atempo.at/de/Angebote/Bildung-und-Karriere/Courses/)

**Making independence a meaningful word: my ICT and ICT-AT learning process**  
*Valentina Zincati (Assistive technology expert, Italy)*

Valentina is a service user of the Assistive Technology services of Corte Roncati. She will talk about her experience with assistive and mainstream digital technologies and how these solutions have helped her to be as independent as possible. **A short video will be shown:** [https://www.youtube.com/watch?v=lVuBcRSTS90](https://www.youtube.com/watch?v=lVuBcRSTS90)

**Bread and Internet: the policy of the Region Emilia Romagna to reduce the digital divide**  
*Stefano Kluzer (Pane e Internet, Region Emilia Romagna, Italy)*

Pane e Internet (Pel) is the main e-inclusion programme of the Telematics Plan of the Emilia-Romagna Region (PiTER). Launched in 2009, it is now entering its third phase for 2014-2017. Over the past 5 years, 2.2M € spent to deliver about 900 basic digital literacy courses which reached 135 municipalities (out of a total of 340 in ER), with 12,000 people trained. To reinforce and give continuity to the short Pel courses e-facilitation service in libraries have also been developed and about 80 municipalities have already activated them. To address the still open challenge represented by almost 1 million digitally excluded people (most of them mature adults and older people), the regional government decided to implement a new strategy with the new 2014-17 Pel project and pledged for it 1.2M€. Rather than continuing with the past approach of central planning, funding and organisation of all training activities by the Pel team at regional level, a multiplication effect of the public resources available will be sought by promoting the creation of local networks of actors concerned with digital inclusion, called Pel Points. These collaborative endeavours are expected to provide entry and first level digital literacy courses; awareness and information initiatives on ‘digital culture’; digital facilitation and other related services. Pel Points are intended to become a permanent source of initiatives and support for the continuous development of digital competences, especially among people at risk of digital and social exclusion. The results envisaged for the next 3 years are: to establish at least 10 Pel Points in municipal unions and possibly in some provincial capital cities; to deliver 200 + 500 entry&first level digital literacy courses to about 9,500 people, along with information events expected to reach 10,000 participants; to train 300 e-facilitators and launch service in 160 new
libraries, with 40,000 people assisted over 3 years. Beyond such quantitative goals, in the new phase PeI will develop specific activities targeting two new groups of potential customers at risk of digital and social exclusion: immigrants and people with disabilities. Concerning this latter group, which includes also many older people, RER and the new PeI Service Centre intend to work jointly with ASPHI, AIAS and ANASTASIS (three organisations in this field which signed the PeI’s MoU) on the following aspects: a) the accessibility of the eInclusion portal under development and of new PeI teaching materials, b) preparing and delivering ad hoc courses for e-facilitators on topics such as: assistive technologies, aging and disability, learning disorders etc.; c) providing selected information, support and learning materials on these topics for the eInclusion portal’s catalogue.

In particular, the aim is to enable e-facilitators: to understand and assess at a broad level a customer with disability (identification of disability type and related needs w.r.t. basic usage of digital tools and services); to help customers with disabilities acquire basic digital skills and perform simple online tasks; to inform and refer a customer with disability to the specialized service providers in ER where she can find additional help (e.g. Asphi, Aias, Anastasis).

The ENTELIS project results: research into the state of the art
Katerina Mavrou (European University of Cyprus)

This intervention presents the main activities and outcomes of the research work package (WP3) of the ENTELIS project (European Network for Technology Enhanced Learning in an Inclusive Society). WP3 is one of the seven interrelated Work Packages (WPs) of the project, each of which includes a detailed schedule of activities (tasks), aiming at the development of a State-of-Art Report on ICT and ICT-AT education and learning, highlighting the main trends, as well the main present barriers, emergent and future needs in terms of analysis, acquisition and reinforcing of digital competences bridging the worlds of education and work. This intervention will provide an overview of the main activities and outputs of WP3 as follows:

- **Task 1: Review and analysis of relevant literature**: a review of literature of the last 10 years and material collected from other sources (e.g. partners’ experiences, previous relevant project reports etc), relevant to ICT-AT competencies and use, accessibility and user involvement, assistive technology and digital society. Preliminary analysis of literature identified the following areas of ICT-AT impact: Daily life PwD and environment (communication, health & wellbeing, independence, environment and factors, hobbies, activities), Education (formal, informal, non-formal), Employment, Barriers, Best practices, Resources.

- **Task 2: Design of Study Conceptual Framework (CF)**: The Conceptual aims to guide the collection, description and assessment of experiences in ICT and ICT-AT education and skills development. Aiming to the establishment of a network towards bridging the digital divide for PwD and elderly, the CF was based on the need to examine how ICT-AT competences have an input in the quality of life of PwD and increase participation in the information era. To that end, all aspects of quality of life (including areas defined in ICF and other frameworks) are examined in relation to digital inclusion and competencies, and how these affect and are affected by policy and practice., lead by the input of the main stakeholders (end-users, users, providers and trainers/educators)

- **Task 3: Elaboration of a taxonomy of educational and lifelong learning interventions**: A taxonomy and glossary of educational and lifelong learning interventions aimed at supporting PwD in developing ICT and ICT-AT skills has been developed, in order to classify and describe initiatives and experiences in formal, informal and non-formal education and to facilitate the understanding in the network by defining relevant terminology used in describing learning and learning events. The deliverable included (a) the taxonomy (i.e. a classification of concepts, in mutually and non-
mutually exclusive categories including: The Area of Education, The Setting of Learning, The Reasons for Learning, The Format of Learning, The Expected Outcomes of Learning, The Assessment of the learned, The Formal Output of Learning) and (b) the glossary (i.e. a controlled vocabulary presenting key terms in four areas, including Terminology related to Lifelong Learning, ICT and ICT-AT specific learning, Design of curriculum and learning programmes, Actors involved in the learning process)

- Tasks 4/5: Interviews on innovation in ICT and ICT-AT & Collection of Experiences: Based on the literature review and on a careful analysis of material collected from other sources (e.g. partners’ experiences, previous relevant project reports etc), three interview protocols were created: one addressed to ICT/AT end-users, one to trainers and one to service/technology providers and professionals. The interviews took place in five EU partner countries, with a total of 55 participants (25 end-users, 15 trainers, 15 service/product providers). The aim is to reflect primarily on the impact of current technological, social and economic changes on the participation of PwD in the educational realm of life and on their perceived level of confidence, efficiency and adequateness (quality of life). To this end, the interview protocols have been developed on the basis of Semi-Structured Interview Themes conveying the main dimensions of life and quality of life, and more specifically they are structured around five categories: (1) Participants’ profile (especially in relation to ICT-AT background and experience); (2) Daily life (including learning and applying new knowledge, communication and interpersonal relationships); (3) Education (formal, informal and non-formal); (4) Employment (including work and economic life); (5) Community, social and civic life (including recreation, human rights and political life and citizenship). Categories and subcategories have taken into consideration some of the life areas listed in the International Classification of Functioning, Disability and Health (ICF), as an established framework, which however, have been expanded and restructured in a way that serves the scope of the project. In addition to interviews, collection of experiences involves partners’ and associate partners’ experiences (e.g. projects, case studies, good practices etc) also submitted on the ENTELIS website (resources).

- Task 6: State-of-Art Report: This task involves a synthesis of interviews and other resources data/findings, the analysis of literature reviews and the experiences shared with others partners and associate partners, which will identify strengths and weaknesses, needs and innovation in the field and highlight the need of working together towards bridging the digital divide.

Research conducted in WP3, provides useful insights into the conceptions and beliefs of end-users, trainers and service/technology providers and professionals in different EU countries on the multifaceted relation between ICT / ICT-AT education and learning. It also highlights the main current trends, barriers, and emergent and future needs and innovations in the field. It emerged that ICT-AT solutions are considered by stakeholders as a fundamental means for PwD to achieve important learning and developmental goals, as well for better quality of their daily life.

All stakeholders participating in the interviews agreed on the importance of ICT-AT technologies for improving safety of PwD, and for enabling them to maintain independence in performing many of the activities of daily living (studying, working, purchasing products and paying bills on the internet, reading e-newspapers, etc.). Also, everyone considered technology as an important means for improving involvement of PwD in social and political life (e.g. communicating via social networks or e-mails). They agreed that technology has revolutionized learning of PwD in several ways, and that while for the general population IT skills are important in acquisition of knowledge from an aspect of PwD they are crucial since they facilitate societal integration and inclusion. At the same time, interviewees recognized the need for PwD to become more skilled in using ICT-AT solutions in order to improve their participation in employment and economic life, which turned to be the weakest part of the interviewees’ experience. Participants identified some
major obstacles which might inhibit the development of ICT/AT competencies for people with learning disabilities: lack of assistive technology, resistance to use assistive technology, lack of education opportunities on ICT and ICT-AT targeting PwD, lack of trained educators who can assess individual needs for AT and prepare individual learning programs for PwD, etc. In particular, interviewees stressed the need for offering more formal and informal opportunities to PwD, on ICT in general and ICT-AT in particular, that would strengthen their competencies and promote their equal participation in the labour market. Some of the participants also noted that it would be equally important to improve the digital skills of the environment (e.g., parents, school professionals, health professionals) around the PwD, since this would have a positive impact on the use of ICT-AT solutions of PwD.
Selected presentations among those submitted

Supporting students with disabilities at university
*Marie Coutant & Dominique Archambault (APACHES, France)*

University is obviously a context where to learn using ICT and to develop digital skills. Nowadays whatever topic they study, students are supposed to be getting acquainted with technology. It is a good opportunity for students with disabilities to learn, experiment or enhance their use of assistive technologies which are going to help them not only in their studies but, more than for any other student, in all the aspects of life: workplace, daily life, communication, mobility, etc. Of course, they have to learn at the same time the use of ICT as other students. Universities provide them with specific support through dedicated support centres. We will describe these support centres in the French academic context, and the way they have constituted an independent network. As part of the academic community, this network has built on the idea of research, as well research about technologies as research about practices.

*Read the full-text of this presentation here: http://www.entelis.net/en/node/115*

Digital equality in school and during leisure time - young people with disabilities
*Helena Hemmingsson (Linköping University, Sweden)*

One of the biggest social changes of our time has been the digitizing of nearly all areas of everyday life. This project reports on disabled young people’s (9-16 years) engagement in computer activities in school and during leisure time in comparison with youngster in general. The results demonstrate that disabled young people had restricted participation in computer use in educational activities. During leisure time however, young people with disabilities had a leading position with respect to internet use in a variety of activities. The discussion points to beneficial environmental conditions at home (and the reverse in school) as parts of the explanation for the differing engagement levels at home and at school, and among young people with disabilities and young people in general.

*Read the full-text of this presentation here: http://www.entelis.net/en/node/115*

Teaching children with disabilities using eye-controlled computer
*Patrik Rytterström (Linköping University, Sweden)*

The technology of computer eye-tracking works, and actually works well but it remains unclear how people with disabilities actually use eye-tracking in a real day-to-day context. This study explores the meaning of teaching children with severe disabilities using eye-tracking. 14 teachers were interviewed about their reflections and experience of teaching and supporting the pupil with an eye-controlled computer. The essence of teaching pupils how to use an eye control computer using eye controlling is both to understand what the pupil does with the computer, and also what the pupil wants to express through the computer. With the introduction of eye gaze technology, there is opportunities to express pupil’s wishes and emotions...
to some extent. The learning situation therefore involves more than learning the eye-control technique and acquiring knowledge of different subjects; it is also an existential situation.

Read the full-text of this presentation here: http://www.entelis.net/en/node/115

Learning environment for touch access to digital interfaces
Charles Lenay (Compiègne University of Technology, France)
Through screen-reader and Braille display, trained blind persons can nowadays manage to access to a lot of activities using computers. However, graphical interfaces and content where the spatial dimension is key for understanding, like charts, pictures or the majority of videogames, are remaining hardly accessible. The Tactos and Intertact technologies are aimed to overcome these limits by providing an efficient sensory supplementation technology enabling blind users to access the spatial dimension of content through touch. Adoption is key when it comes to develop technologies and we report here on the research we conduct for enabling an independent learning of our system by blind persons. From our perspective, this possibility is a cornerstone for the development of an active users’ community.

Read the full-text of this presentation here: http://www.entelis.net/en/node/115

Creation of an Interactive and Accessible Online Learning Environment
Jere Kuusinen (Satakunta University of Applied Sciences, Finland)
In our project www.kaikille.fi, we planned and created an interactive online learning environment, the purpose of which is to create a pedagogical model for the development of an accessible online service. The site includes accessibility-related articles written by experts in this field and the site's graphic design and programming was carried out by using accessible solutions.

Read the full-text of this presentation here: http://www.entelis.net/en/node/115
Participatory approach for the development and implementation of a service of “Smart homes for independent living experiences”

Ivan TRAINA
Department of the Education Studies, University of Bologna, Italy.

Background
This fact-sheet focuses on the case study realized by the USL Bologna and Emilia-Romagna’s Center for Assistive Technology of Corte Roncati, aimed at developing and implementing a service of “Smart homes for independent living experiences” through a participatory approach.

The case study was aimed to promote living experiences in apartments through innovative activities characterized by means for the development of personal autonomy addressed to young adults and adults with disabilities.

The apartments used for the experimentation of the service are “ambient assisted living”, with facilitating aids, accessibility solutions and assistive technology, as well as an environment with green areas located in the city centre of Bologna.

The experimentation was carried out over nine weekends, from February to December 2013. The main activities planned for the development of the service included:

- Active role of the group of participants in the weekend of autonomy for the development and implementation of the service.
- Everyday and practical activities inside the apartments for the development of skills and competencies aimed at achieving more autonomy, in particular away from their familiar surroundings, with the adequate support of two professional educators.
- Activities outside the apartments in the external environment for the development of autonomy in an urban setting.

Activity report
The participatory method of the Living Lab was adopted in order to enable an effective participation and to foster the inclusion in the process of developing and implementation of the service. Before, during and after the analysis many observations were realized during meetings and informal conversations that took place with all the participants involved in the experimentation

Three levels of analysis were taken into account:

- **Micro**: the focus was on psychological aspects, either for the group of participants or for the professional educators involved in the weekends of autonomy.

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1 The term used to nominate the service “Smart homes for independent living experiences”, indicates apartments provided with home automation and assistive technology.

2 See the EU Ambient Assisted Living Joint Programme, available at: [http://www.aal-europe.eu/](http://www.aal-europe.eu/)
Meso: the analysis considered the perception of the service, by the group of participants, the educators and the other professionals involved in the experimentation.

Macro: involvement of network’s institution, roles and responsibilities were investigated.

The case study and the research methodology followed the logic of the Living Lab method, adding the value from the direct involvement of the group of participants. The participants became co-designers and co-creators of the service, providing ideas, suggesting solutions, and giving feedback (participatory-action-research approach). The monitoring phase was recorded throughout the whole experimentation, using the following tools:

- Feedback collected through coordination and Living Lab meetings;
- The disabilities of the arm, shoulder and hand (DASH)\(^3\) questionnaire, and the instrument IPPA (Individual Prioritised Problems Assessment), for outcome analysis in occupational rehabilitation.
- Diary of the experience, written and used by the group of participants to report problems and needs, suggest possible solutions and ideas;
- Interviews and focus groups with all the participants.

Conclusions

The Living Lab approach has influenced the outcomes of the experimentation in a positive way as reported in the interviews and focus groups realized. Strengths and weaknesses of the experimentation have indeed influenced and have been influenced by the kind of participants’ involvement.

Concerning the strengths: the experimentation carried out differs from others experiences realized within types of occupational therapy or physiotherapy. While these only have purpose related to functional assessment and rehabilitation, the experimentation observed has an “inclusive educational aim” (without excluding other aims to the rehabilitation). The social-health care context in general - if not always - lacks this aim. In this case study the professionals involved assumed a maieutic role in supporting and encouraging the independence of the group of participants. In addition the participants contributed not as “testers or users”, but rather as co-creators of a service. This aspect allowed a rise in awareness and better understanding of what can be achieved with aids and supports, greater autonomy and ultimately increased self-determination and self-esteem. In this case the inclusive educational aim has influenced and benefited all persons involved, through the realization of a learning environment characterized by mutual collaboration, sharing and participation; creating a sort of virtuous spiralling cycle.

Weaknesses were related to organizational bonds that often did not allow for practicing innovative methods of participation – such as the Living Lab. In this case it has provided the possibility of a new window of cultural horizons. Characterized by greater participation and involvement in the definition of services, shifting from a situation of “customer satisfaction” to new one of “person participation”.

The high number of institutions involved\(^4\) in the development and implementation of the service caused a certain level of complexity in the coordination and management of resources, spaces and communications. The lesson learned is that in order to encourage other similar experiences of participation, cultural changes are necessary in organizations, including the processes and practices of the institutions involved.

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\(^3\) Available at: [http://www.dash.iwh.on.ca/system/files/dash_questionnaire_2010.pdf](http://www.dash.iwh.on.ca/system/files/dash_questionnaire_2010.pdf)

\(^4\) USL Bologna, Emilia-Romagna’s Center for Assistive Technology of Corte Roncati, District of Porretta Terme, ASC INSIEME, AIAS Bologna Onlus, Passo Passo Association and Cooperative Libertas.
Center for Assistive Technology – An Example of Good Practice

Slavica Markovic, school’s director, Mirjana Isakov, program coordinator, Nevena Ivkovic, IT technician, Nemanja Sevic, IT technician, Svetlana Kekic, PR manager

Background
Elementary and Secondary Boarding School "Milan Petrovic" is the only institution in Serbia and in the region that includes children with special needs and persons with disabilities from the earliest age to their adulthood, regardless of their disability.

AT equipment is necessary device in everyday life for the most of our pupils. Consequently, we have been using wide variety of AT equipment for a long time. Center for Assistive Technology (CAT) emerged as a specific service in the school aimed at our pupils but also to other children and people with disabilities in Novi Sad. Since 2014 CAT is financed as a project by the Municipality of Novi Sad.

Activity Report
Main objectives of the CAT are to help improving overall quality of life of the beneficiaries, empowering them for various life skills, learning and communication, increase their social inclusion and spread the feeling of sensibility towards people with disabilities throughout the community.

Apart from the main objectives, CAT is also aimed at overcoming communicational barriers, providing multidisciplinary support and services for persons with disabilities regarding AT in the local community and empowerment of persons with disabilities and their families.

Also, CAT is designed to monitor and assess AT needs in the local community and consequently develop adequate programs with scientific institutions.

CAT offers wide variety of services:

- Assessment of AT needs
- Training and education of direct and indirect beneficiaries
- Usage evaluation
- Service and maintenance of hardware and software
- Equipment renting
- Consulting and mediation in acquiring adequate AT equipment
- Educating target group members and experts about novelties in the area of AT
- Educating professionals in various institutions and schools
- Permanent AT beneficiaries support on its usage, maintenance and improvement

Besides CAT, the School organizes accredited courses about assistive technology and publish handbooks.

Musical instruments that can be played by pupils with multiple disabilities also distinguish us from other schools. They are played via control board, optical and luminous sensors, and with Soundbeam system.
The School created portal for distance learning "Milanče" (www.milance.edu.rs) in order to help those pupils who can’t attend lessons on a daily bases due to their health condition.

Also, our teaching and therapeutical stuff are continously attending various trainings and educational courses in order to enhance and improve their knowledge.

We use the following equipment (new, up-to-date equipment has constantly been purchised):

- interactive boards (Smart board)
- Tobii C12 PackageCommunicator- Tobii C12 ,with additional Tobii eye tracking system
- iOS and Android Tablets used as communicators
- GoTalk communicators (various sizes)
- Specialised keyboards (robust , with large keys and grids, sound keyboard, Cherry keyboard with replaceble keys - intely keys) and mouses („big wheel“, BiGtrack - Big track mouse),
- various switchs
- Braille typing machine
- Braille display
- Printer for relief-tactile prints
- Braille embosser,
- PACmate- Braille keyboard
- JAWS screen reading software,
- AN reader software for synthetic speech (for Serbian language),
- Specialised keyboard for visually impaired persons (PC- Keyboard with extra large lettering)
- Onyx digital magnifier

Conclusions
AT has proven to be one of the essential tools for both children and people with disabilities regardless of their age or type of disability.

It improves their quality of life in every segment. Also, it helps them to become more independent and empowers them for everyday activities, learning and communicating processes thus obtaining them better social inclusion.

We are fully dedicated to further exploring the possibilities of AT in life-long learning process of our beneficiaries and to spreading its importance throughout our target audience.

References
Our references are more than XXX beneficiaries who use AT in school on a daily bases as well as more than XXX persons with disabilities, their families and teachers who went through AT assessment process in our CAT.

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Towards a job profile of an ICT-AT trainer

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aAIAS Bologna onlus – Ausilioteca Team, bUniversity of Bologna, Department of Education

Background
Within the ATLEC project (518229- LLP-1-2011-UK-LEONARDO-LMP) a job profile of an Information and Communication Technology-Assistive Technology trainer (“ICT-AT trainer” henceforward) was developed.

Activity Report
A preliminary analysis revealed that a formal and specific qualification for ICT-AT trainer does not seem to exist in Europe and the function is in reality performed by professionals with a wider professional preparation whose educational background, professional profile and job description varies depending on the context and the country.

A job profile typically includes a list of: required competences, a role description within a given organisational context, goals, tasks and responsibilities. Where the competences required from an ICT-AT trainer are basically the same for any work environment -due to similar type of needs across the target population-, the tasks, functions and responsibilities of an ICT-AT trainer might differ depending on the operational context, e.g. AT Centres, Health Units, Disabled People Organizations, Schools, Higher Education Institutions, Vocational Training centres, AT vendors, etc. In other words, whilst knowledge, skills and competences basically are the same, the role, goals, tasks and responsibilities may change, on the basis of the needs of the structures in which the professional will be placed. This makes it difficult to speak about a unique job profile for ICT-AT trainer, but it does make it possible to reflect on the core areas of ICT-AT knowledge, skills and competences required to perform this specialized role.

Within the ATLEC project we have therefore described 5 job profiles based on realistic work environments: formal education, AT Centres, informal adult education, vocational training centres, community settings. Together with wider aspects related to required education and experience they are reported in the project report (see References). In the annex to this fact sheet we present the core competence framework as designed within the project and as discussed by the consortium and with a panel of international experts.

Conclusions
Digital skills acquisition of persons with disabilities is definitely a priority for the inclusive society and for closing the digital divide. ICT-AT learning is an important part of digital skills development. ICT-AT trainers can fulfil an important role. As learning takes place in different contexts, jobs will probably always be different, but qualifications and competences required should be further investigated and validated in order to promote the very idea that professional intervention is needed, as well as structural investments in digital skills development of citizens at risk of digital exclusion.

References

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Evert-Jan Hoogerwerf. AIAS Bologna onlus Ausilioteca Team. E-mail: hoogerwerf@ausilioteca.org
We have referred to the European Qualification Framework for the following definitions: **Knowledge** means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual. **Skills** means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments). **Competence** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.

<table>
<thead>
<tr>
<th>Proposed ATLEC Competence framework for an ICT-AT trainer</th>
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<tbody>
<tr>
<td><strong>General</strong></td>
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<tr>
<td>• Broad theoretical and practical knowledge in the ICT and ICT-AT field.</td>
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<td>• Demonstrate critical awareness of knowledge issues in the ICT-AT field and at the interface between different disciplines.</td>
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<td>• Knowledge of the advantages of using the personal solution compared to non-using it.</td>
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<td>• Good understanding of national and local current legislation relevant to disabled people. Knowledge and understanding of the UN Convention on the Rights of Persons with disabilities.</td>
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<td>• Knowledge of the rehabilitation, educational and social services that people with disabilities typically refer to, especially those relevant in the AT implementation process.</td>
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<td>• Understanding of education and learning processes.</td>
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<td>• Knowledge of the basics of user centered design.</td>
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<tr>
<td><strong>Technical</strong></td>
</tr>
<tr>
<td>• Working knowledge and comprehensive understanding of ICT-AT including: hardware, software, and practices which allow persons with disabilities equal access and creates the most inclusive environment.</td>
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<tr>
<td>• Knowledge of effective best practices and current issues in the field of accessibility and user centred approach, including adaptations and modifications that enable people to improve their quality of life.</td>
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<tr>
<td>• Excellent knowledge of emerging mobile technology, tablet computers and social networks.</td>
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<tr>
<td><strong>Specific</strong></td>
</tr>
<tr>
<td>• Demonstrable knowledge of the application of ICT-AT strategies pertinent to specific groups of persons with disabilities.</td>
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<tr>
<td>• Demonstrable knowledge of assistive devices and be able to describe the personal assistive solutions in their context of use and their expected outcome.</td>
</tr>
<tr>
<td>• Demonstrable knowledge of the AT market and ability to search and find information about ICT-AT solutions at local and national level. Awareness of international databases in this field.</td>
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| Knowledge* |
|------------------|-------------------|------------------|
| • Excellent teaching skills |
| • Ability to design learning programmes that respond to training needs by integrating multidisciplinary knowledge elements from different sources. |
| • Excellent interpersonal and communication skills |
| • Good organisational and time management skills. |
| • Elementary skills in applying the basics of user centred design. |
| • Skill to perform a context analysis before implementing AT. |
| **Skills** **|**
| • Mastery of methods and tools in many areas of AT. |
| • Experience in setting up and using ICT-AT. |
| • Ability to transform emerging technologies (i.e. mobile applications, social networks, e-learning) in opportunities for learning. |

| Competences** *** |
|-------------------|-------------------|------------------|
| • Demonstrate autonomy in the direction of training and high level of understanding of education and learning processes of people with different disabilities. |
| • Demonstrate ability to develop individualised training programmes that are responsive to the needs identified. |
| • Express a comprehensive, personalized viewpoint showing respect for the view of others. |
| • Work effectively both independently and as part of a multi-disciplinary team, also during the assessment phase. |
| • Demonstrate experience of operational interaction in multidisciplinary teams and within complex environments. |
| • Demonstrate experience in context analysis. |
| **Technical** |
| • Demonstrate excellent knowledge of current and evolving trends in ICT and assistive technology. |
| • Apply working knowledge of specialist assistive software or hardware and skills in reaching satisfying outcomes. |
| • Demonstrate ability to interact with ICT-AT technicians for expert advice and the personalisation of devices and solutions. |

| Specific |
|------------------|-------------------|------------------|
| • Experience of working with disabled people, families, professionals and HRMs. |
| • Ability to adapt learning programmes to the needs and wishes of the disabled learner. |
| • Ability to identify critical issues during the training related to personal training needs and the appropriateness of the solutions identified for the learner. |

Show initiative in the management of training processes to develop awareness for the benefit of using ICT-AT in personal context. Demonstrates empathy, involvement and motivation in dealing with learners with disabilities. Make recommendations based on the integration of social and educational issues.
Personalised Technology & Hft

Background

Hft has been developing ICT for adults with a learning disability since 1999 and some assistive technology was used around input devices to help access computers. In 2004 Hft secured a 3 year ESF (European Social Fund) funded project, TATE (Through Assistive Technology to Employment). The initial focus was on underpinning knowledge and skills (software) and innovative assistive technology solutions. Eighteen months before the end of the project it was suggested that we should have been including existing products such as telecare, environmental controls, automatic lighting etc. There was little evidence that any organisation (apart from a small provider in Wales) had tried these technology based solutions with people with a learning disability.

TATE highlighted the potential benefits of using assistive technologies to support people with learning disabilities. It developed the concept of person centered technology (later personalised technology), which includes telecare, environmental controls, telehealth and other electronic assistive technologies. As part of the project, a very small scientific evaluation was conducted. This highlighted significant cost savings when using PT, but did not give much insight into the impact on the quality of life experienced by people using PT.

It also highlighted that telecare was essentially seen as the domain of the ageing population and environmental controls the domain of people with physical disabilities. Provision of equipment was generally made via providers of social housing or care homes, as part of the environment or via health provision. Funding streams varied.

The aim of the project was to reframe provision around an assessment of need that included an ethical code, referral, self-assessment and consent, which allowed for changing needs and on-going support.

Since the TATE project ended Hft has built on the lessons learned and worked hard to implement PT across the organisation and also raise awareness of PT – both internally at Hft and also externally.

More recently, the two main environmental factors have stimulated a great deal of interest in PT:

- The growing awareness of the size of the market
- The recession

Hft started using Personalised Technology (PT) before the recession had really ‘hit’. But there is little academic evidence of the benefits of PT and there is increasing pressure to highlight the economic benefits. Consequently Hft has commissioned a research company to develop a ‘tool’ to assess the benefits (or not) on the quality of life, level of dependency and economy in the use of PT. The first results (80 individuals) show that there is a significant benefit in the quality of life and less dependency on staff (save money). However, PT is not a one off solution. People’s needs change and some solutions may no longer be required while other solutions may be required.
Activity Report

The latest grant has been from Technology Strategy Board (TSB – now Innovate UK) funded by the Department for Business, Innovation and Skills (BIS). The overall project is called ‘dallas’ (delivering assisted living lifestyles at scale). From over 800 registered interested organisations, through a series of workshops and eliminations, four partnerships with approximately 35 organisations were successful. Hft is one of the lead organisations and on the board of the Liverpool ‘Mi’ (More Independent) partnership led by the Liverpool Clinical Commissioning Group (CCG, formerly the Primary Care Trust). The partnership was awarded £7.8 million (3 years from 1st June 2012) subsidised by a further £5 million from the CCG.

‘dallas’ is an attempt to encourage communities to look at new ways and methodologies to enhance its overall health and economic sustainability at scale. The ‘assisted living’ part in ‘dallas’ is very much supported by Hft’s development of PT. Essentially the way Hft approaches the use of PT with the issue first can be transferred to other groups, including vulnerable groups and the general public. This has required Hft to develop generic mobile and virtual smart houses and modify its training for the different stakeholders (volunteers, carers, social workers, front line clinicians). Probably more importantly ‘dallas’ is giving Hft the opportunity to raise the issues associated with learning disability with commissioners (social care and health) both locally to Liverpool and nationally.

References

www.hftsmarthouse.org.uk

www.hfttechnologyshop.org.uk

www.moreindependent.co.uk

Contact details

Steve Barnard, Strategic Director of Innovation – steve.barnard@hft.org.uk

Emma Nichols, Personalised Technology Manager – emma.nichols@hft.org.uk

Sarah Weston, Innovation Manager – sarah.weston@hft.org.uk
More Independent (Mi) project

Background
Hft is a lead partner in ‘dallas’ – delivering assisted living lifestyles at scale – a Technology Strategy Board (TSB – now Innovate UK) funded project led by Liverpool NHS, known as Mi (more independent), based in Liverpool. The aim of the project is to raise people’s ability and awareness of the opportunities offered by self-care, in all its forms, using a cultural shift and technology-based solutions on all levels, from the community to primary, secondary and tertiary care. The project looks to see how technology in a wide variety of settings and audiences could enhance people’s lives and make better use of resources.

Activity Report
Liverpool Community Health (LCH) has led one of the programme objectives to enable people to be supported in their community by a tailored package of health technology and monitoring and/or social/medical care, to reduce hospital admissions and visits to the GP. They have set up a central ‘hub’ in Liverpool, which is staffed by nurses and offers telehealth services to local residents. Once individuals have been referred to the ‘hub’ by their GP, they have telehealth equipment installed in their homes allowing them to monitor health conditions such as blood pressure, glucose levels or weight. Recordings are then monitored by hub staff, who can make referrals to the GP should intervention be required.

The service has been very successful and is now enrolling 70 people per week into the system. It is a robust, telehealth system which is improving the health and wellbeing of those using it, allowing them to take control of their health and is now starting to support people outside the city of Liverpool.

In supporting Liverpool NHS and broadening the potential beneficiaries to include other vulnerable and mainstream groups, Hft developed the ‘Mi’ Smart House – hosted in the National Museum of Liverpool – to reach new audiences. This is based on Hft’s own mobile Smart House: a purpose built mock flat, showing how personalised technology can be used in the home to support independence, choice, dignity and control for people with learning disabilities.

Hft has used the Mi programme to develop its approach to explaining technology-based solutions to other audiences. To date, more than 26,000 people have visited the Mi Smart House with a further 10,000 seeking advice about the Smart House and products featured.
In partnership with the Liverpool Football Club Foundation, Hft designed a trailer based on Hft’s mobile Smart House. This goes to various events around Liverpool, including schools, and has currently reached an additional audience of over 2,500. A grand total of 38,500 people have been reached through the Mi Smart House and trailer.

Image: Liverpool FC’s mobile Smart House trailer

Working alongside Liverpool NHS, Hft commissioned information animations: ‘what is telecare?’, ‘what is telehealth?’ and developed a training programme with another provider to help the public, professionals and commissioners gain a real insight into the benefits of telecare and telehealth. A video walk-through of the mobile Smart House highlighting the different technology solutions in the home is also available.

Conclusions
‘dallas’ is a current example of how Hft’s development of PT has allowed the organisation to move into forums not normally associated with learning disability, allowing Hft to influence the specific learning disability market, other markets of vulnerable people, mainstream markets and, extremely importantly, health.

References
www.hftsmarthouse.org.uk
www.moreindependent.co.uk

Contact details
Steve Barnard, Strategic Director of Innovation: steve.barnard@hft.org.uk
Emma Nichols, Personalised Technology Manager: emma.nichols@hft.org.uk
Sarah Weston, Innovation Manager: sarah.weston@hft.org.uk
Towards an ICT-AT Competence framework

Giorgia BRUSA\textsuperscript{a}, Evert-Jan HOogerwerf\textsuperscript{a}
\textsuperscript{a}AIAS Bologna onlus – Ausilioteca Team

Background

One of the main problems ICT-AT trainers have in addressing the learning needs of the students with disabilities is to see these in the wider framework of competence development. In the European project ATLEC (LLL programme 2011-2013) an ICT-AT competence framework has been designed. The framework is a structured overview of learning outcomes allowing for the definition of learning programmes, levels and progress in learning. The ICT-AT competence framework lists ICT-AT related learning outcomes at four different levels subdividing them in categories of competence. Learning outcomes are the set of knowledge, skills and competencies an individual is expected to acquire after completion of a learning process. The learning outcomes of ICT-AT training can be described as facts and principles (knowledge and awareness) related to ICT-AT, practical ability (skills) to use assistive technologies effectively and meaningfully in personal and professional life and personal outcomes (competences) related to independence and participation in the knowledge and information/communication society.

Activity Report

Partners of the ATLEC project in the UK, in Greece, in Belgium and in Italy (for a full list see www.atlec-project.eu) have developed curricula in ICT-AT and tested them with groups of learners. The framework is the outcome of the acquisition and systematically grouping of learning outcomes delivered in those curricula by the single partners with different groups of students. As a guideline the European Qualification Framework (EQF) methodology has been adopted. The EQF describes generically levels in the development of knowledge, skills and competencies of a person. The framework can be applied to sector skills thus enabling learners to clearly see how competence levels relate to one another and progress in learning (12). Within ATLEC we and our partners have developed a similar framework for ICT-AT skills for persons with disabilities. The different levels for learning in ICT-AT suggested are the following:

**Access level** This level is relevant for persons with disabilities (and their immediate support network: formal and informal carers, educators) who aim towards having awareness of the use of personal ICT-AT solutions and very basic skills in using them, where necessary with high levels of support.

**Foundation level**
This level is relevant for persons with disabilities who aim towards having basic knowledge of personal ICT-AT solutions and adequate skills in using them proficiently with little or no support.

**Intermediate level**
This level is relevant for persons with disabilities who aim towards having in-depth knowledge and critical awareness of personal ICT-AT solutions and proficient skills in using these independently to increase their level of activity and participation. This does not exclude support in setting up the ICT-AT solution.

**Advanced level**
This level is relevant for persons with disabilities who aim towards having wider knowledge on ICT-AT solutions for a wide range of other users in order to be able to support them appropriately.

For the moment these levels are not linked to specific levels of the EQF, although it is not difficult to imagine that the concerned range of EQF levels equals 1 to 4/5.

Progression in the framework is defined by the level of autonomy in the use of ICT-AT, the level of knowledge and understanding, the ability to apply skills in different contexts and the outcomes in terms of independence and participation.

Most single learning outcomes have been piloted, but not the entire framework as part of a single learning programme.

Conclusions

The relationship between learning and ICT-AT has different dimensions: learning in ICT-AT, learning with ICT-AT and learning through ICT-AT. These dimensions are closely linked to each other as part of an upward spiral of development and empowerment. It is important that efforts in supporting children and adolescents with disabilities include in an early stage the use of technology as a powerful and “mainstream” way of developing autonomy. Where there is a lot of experience with learning with ICT-AT and learning through ICT-AT much materials are available to guide and support Learning in ICT-AT. The ATLEC framework is apparently a useable “navigator” for those involved in ICT-AT competence development. Nevertheless further pilots are needed to assess its overall completeness and validity.

References

The ICT-AT competence framework is part of the ATLEC Curriculum and Handbook. Download link: http://atlec-project.eu/download/

More information on the European Qualifications Framework and its descriptors can be found at: http://ec.europa.eu/ploteus/content descriptors-page

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Empowering through assistive technology: methods and tools developed by the European EUSTAT Study

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Background
This fact sheet reports on the findings of the EU-funded EUSTAT project (Empowering Users through Assistive Technology), carried out in 1997-1999 by a international consortium including organisations of people with disabilities, academic institutions and rehabilitation centres. Although it was a pioneering study and assistive technology (AT) has significantly advanced since that time, the relational approach and the methodologies developed by the EUSTAT study are still fully valid today.

The initial assumption was that awareness and knowledge of AT are key factors in supporting empowerment of people with disabilities, and they also greatly contribute to the success of AT solutions. The main research question was about which criteria should drive the design of effective educational initiatives that lead to the empowerment of people with disabilities in relation to AT.

Activity report
The project activities proceeded in five steps [1]:

1. identification of the critical factors involved in education of end-users of assistive technology (by means of literature review and interviews to key stakeholders);
2. survey of ongoing initiatives related to AT education of end-users in various EU Countries and also overseas (60 initiatives were found at that time and were analysed, based on a common grid);
3. based on the critical factor identified and on the findings of the survey, a couple of handbooks were developed and published, for the end-users and for the teachers respectively, to be used as educational material for courses addressed to people with disabilities;
4. based on the above, three pilot courses were designed and carried out in order to validate the methodology and the educational material in different contexts and formats: a short course (half day seminar, which was tried out in Belgium), a serial course (five half-day seminars, which was tried out in France) and a residential course (a full-immersion week, which was tried out in Italy) (Picture 1).
5. Finally, the methodology was refined and published (the EUSTAT methodology for empowerment of end-users in relation to assistive technology) as well as the educational material. Now the latter is composed of two handbooks which have been translated into seven languages and disseminated in many countries worldwide.

Picture 1- The teaching staff at a residential course
The English title of the end-user handbook is *Go for it! A User Manual on Assistive Technology*¹ while the English title of the trainer handbook is *Assistive Technology Education for end-users: guidelines for trainers*.² This material can be used in many different kinds of educational activities, such as courses, seminars, workshops and conference cycles, addressed to people of any ages and disabilities.

Whatever format and audience is chosen, the methodology developed by the Study indicates four classes of critical factors that should be addressed in order to design an effective educational initiative:

- positioning factors;
- factors related to the transfer of knowledge to the group;
- factors related to the reception of knowledge by the individual;
- factors related to the transformation of knowledge into initiative.

The trainer handbook provides guidelines on how to address each factor so as to help the organiser make appropriate decisions. The dissertation is illustrated with a detailed report of the three pilot courses carried out in the fourth stage of the project, serving as inspiration for anybody who intends to carry our similar initiatives.

**Conclusions**

Since the publication of the EUSTAT methodology and of the handbooks, many organisations throughout the world – especially user organisations and rehabilitation providers – were inspired to think about the need to facilitate empowerment of people with disabilities in relation to AT. The EUSTAT partners went on carrying out courses every years, taking advantage of the lesson learned within the project. Other organisations initiated new courses – each one localised in a specific geographical and human context – and some others included the EUSTAT methodology in educational programmes addressed to rehabilitation or education professionals.

After over 15 years – despite the great technological advancement – the methodology is still valid. Of course, as time evolves, the programmes of educational activities based on this methodology need to be continuously revised or redesigned, in order to fit the technological advancement, the social changes and the local environments. However, the EUSTAT handbooks are not intended to “provide the fish” (indicating turnkey solutions); they are rather intended to “teach the person to fish” (master the process that leads from the recognition of a need to deciding a solution). Although some chapters of the end-user handbook are partially obsolete today - in that they show examples referred to technologies available at that time - most others chapters are still valid, especially those related to how to self-assess one's own needs. Conversely, the trainer handbook is fully usable: it helps design educational programmes on AT within an empowerment perspective, independently of specific technologies.

**References**


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¹ downloadable from http://portale.siva.it/en-GB/databases/libraries/detail/id-6 in seven languages

² downloadable from http://portale.siva.it/en-GB/databases/libraries/detail/id-1 in seven languages
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